UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/006,179	12/04/2001	Sanguthevar Rajasekaran	020967-000110US	2863

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EXAMINER
EHICHIOYA, FRED I

ART UNIT	PAPER NUMBER
2172	6

DATE MAILED: 07/01/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

	Application No.	Applicant(s)
Office Action Summary	10/006,179	RAJASEKARAN ET AL.
	Examiner	Art Unit
	Fred I. Ehichioya	2172

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *17 January 2002*.

2a)☐ This action is **FINAL.**   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1 - 40* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2,11,16,17,26,31 and 32* is/are rejected.

7)☒ Claim(s) *3 - 10, 12 - 15, 18 - 25, 27 - 30, and 33 - 40* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *4*.

4)☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____.

DETAILED ACTION

1. Claims 1 - 40 are pending in this application.

Information Disclosure Statement

2. The reference cited in the information disclosure statement, IDS- Form 1449 has

been considered by the examiner.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of

the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of

the various claims was commonly owned at the time any inventions covered therein

were made absent any evidence to the contrary. Applicant is advised of the obligation

under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was

not commonly owned at the time a later invention was made in order for the examiner to

consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g)

prior art under 35 U.S.C. 103(a).

4. Claims 1, 2, 11, 16, 17, 26, 31 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S Patent 6,389,412 issued to John Light (hereinafter "Light") in view of U.S. Patent 6,614,789 issued to Nasser Yazdani et al (hereinafter "Yazdani").

Regarding claims 1, 16 and 31, Light teaches a system for determining if a query element is included in a set of elements, the system comprising:

a processor (see column 9, lines 43 – 64);

a memory coupled to the processor, the memory configured to store a plurality of code modules executable by the processor, the plurality of code modules comprising (see column 9, lines 43 – 64):

a code module for receiving information identifying the query element (see column 16, lines 5 – 14); and

a code module for using the data structure to determine if the query element is included in the set of elements such that the number of comparisons needed to determine if the query element is included in the set of elements is proportional to a length of the query element and independent of the number of elements in the set of elements (see column 15, lines 40 – 67 and column 16, lines 1 – 26).

Light does not explicitly teach building data structure.

Yazdani teaches a code module for building a data structure (see column 9, line 63) based upon information identifying elements in the set of elements (see column 10, lines 26 – 33).

It would have been obvious to one of ordinary skill in the art at the time the

invention was made to combine teaching of Yazdani with the teaching of Light wherein

the data structure is divided into recursive half. The motivation is that all the data

elements to be search are distributed among this split of the data structure. This makes

the searching more quick and efficient.

Regarding claims 2, 17 and 32, Yazdani teaches wherein the query element is of

length "q" and at most "q" character comparisons are needed to determine if the query

element is included in the set of elements (see column 6, lines 4 – 14).

Regarding claims 11 and 26, Yazdani teaches wherein a size of the data

structure is independent of the number of elements in the set of elements (see column

4, lines 18 – 23).

Claim Objections

5. Claims 3, 12, 18, 27, 33 and 37 are objected to as being dependent upon a

Rejected base claim,   but would be allowable if rewritten in independent form

including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject

matter:

As to claims 3, 18 and 33, the prior art of record does not teach or fairly suggest

wherein: the set of elements contains elements from a domain Σ having a character set

of "m" characters, wherein "Z" is the maximum possible length of an element in domain $\sum$ and "Y" is the length of the longest element in the set of elements such that $1 \leq Y \leq Z$; and building the data structure comprises building the data structure comprising a plurality of memory structures headed by a root memory structure, each memory structure in the plurality of memory structures comprising a first memory location and array of "m" memory locations.

Claims 4, 5, 6, 7, 8, 9 and 10 are dependent on claim 3; Claims 19, 20, 21, 22, 23, 24 and 25 are dependent on claim 19; and Claims 34, 35 and 36 are dependent on claim 33. They further limit the subject matter of claims 3, 18 and 33 respectively.

As to claims 12, 27 and 37, the prior art of record does not teach or fairly suggest wherein where: the set of elements contains elements from a domain $\sum$ having a character set of "m" characters, wherein "Z" is the maximum possible length of an element in domain $\sum$; and the data structure comprises "Z" memory structures, each memory structure comprising "m" slots, each slot comprising a first memory location and an array of memory locations, each array of memory locations comprising "(m+1)" memory locations.

Claims 13, 14 and 15 are dependent on claim 12; Claims 28, 29 and 30 are dependent on claim 27; and Claims 38, 39 and 40 are dependent on claims 37. They further limit the subject matter of claims 12, 27 and 37 respectively.

Conclusion

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Fred I. Ehichioya whose telephone number is 703-305-8039. The examiner can normally be reached on M - F 8:00 AM to 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John E. Breene can be reached on 703-305-9790. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Fred I. Ehichioya
Examiner
Art Unit 2172
June 27, 2004

SHAHID ALAM
PRIMARY EXAMINER